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THE PLACE OF AFFECTIONAL FACTS IN A WORLD OF PURE EXPERIENCE

COMMON sense and popular philosophy are as dualistic as it is possible to be. Thoughts, we all naturally think, are made of one kind of substance, and things of another. Consciousness, flowing inside of us in the forms of conception or judgment, or concentrating itself in the shape of passion or emotion, can be directly felt as the spiritual activity which it is, and known in contrast with the space-filling objective 'content' which it envelopes and accompanies. In opposition to this dualistic philosophy, I tried, in a recent article in this JOURNAL,[1] to show that thoughts and things are absolutely homogeneous as to their material, and that their opposition is only one of relation and of function. There is no thought-stuff different from thing-stuff, I said; but the same identical piece of 'pure experience' (which was the name I gave to the *materia prima* of everything) can stand alternately for a 'fact of consciousness' or for a physical reality, according as it is taken in one context or in another. For the right understanding of what follows, I shall have to presuppose that the reader will have read that earlier article.[2]

The commonest objection which the doctrine there laid down runs up against is drawn from the existence of our 'affections.' In our pleasures and pains, our loves and fears and angers, in the beauty, comicality, importance or preciousness of certain objects and situations, we have, I am told by many critics, a great realm of experience intuitively recognized as spiritual, made, and felt to be made, of consciousness exclusively, and different in nature from the space-filling kind of being which is enjoyed by physical objects. In Section VII. of that earlier article, I treated of this class of experiences very inadequately, because I had to be so brief. I now return to the subject, because I believe that, so far from invalidating my general thesis, these phenomena, when properly analyzed, afford it powerful support.

[1] 'Does Consciousness Exist?' Vol. I., p. 477.

[2] It will be still better if he shall have also read the article entitled 'A World of Pure Experience,' which follows that one and develops its ideas still farther. See this JOURNAL, Vol. I., pp. 533, 561.

The central point of the pure-experience theory is that 'outer' and 'inner' are names for two groups into which we sort experiences according to the way in which they act upon their neighbors. Any one 'content,' such as *hard,* let us say, can be assigned to either group. In the outer group it is 'strong,' it acts 'energetically' and aggressively. Here whatever is hard interferes with the space its neighbors occupy. It dents them; is impenetrable by them; and we call the hardness then a physical hardness. In the mind, on the contrary, the hard thing is nowhere in particular, it dents nothing, it suffuses through its mental neighbors, as it were, and interpenetrates them. Taken in this group we call both it and them 'ideas' or 'sensations'; and the basis of the two groups respectively is the different type of interrelation, the mutual impenetrability, on the one hand, and the lack of physical interference and interaction, on the other.

That what in itself is one and the same entity should be able to function thus differently in different contexts is a natural consequence of the extremely complex reticulations in which our experiences come. To her offspring a tigress is tender, but cruel to every other living thing—both cruel and tender, therefore, at once. A mass in movement resists every force that operates contrariwise to its own direction, but to forces that pursue the same direction, or come in at right angles, it is absolutely inert. It is thus both energetic and inert; and the same is true (if you vary the associates properly) of every other piece of experience. It is only towards certain specific groups of associates that the physical energies, as we call them, of a content are put forth. In another group it may be quite inert.

It is possible to imagine a universe of experiences in which the only alternative between neighbors would be either physical interaction or complete inertness. In such a world the mental or the physical *status* of any piece of experience would be unequivocal. When active, it would figure in the physical, and when inactive, in the mental group.

But the universe we live in is more chaotic than this, and there is room in it for the hybrid or ambiguous group of our affectional experiences, of our emotions and appreciative perceptions. In the paragraphs that follow I shall try to show:

(1) That the popular notion that these experiences are intuitively given as purely inner facts is hasty and erroneous; and

(2) That their ambiguity illustrates beautifully my central thesis that subjectivity and objectivity are affairs not of what an experience is aboriginally made of, but of its classification. Classifications depend on our temporary purposes. For certain purposes it is convenient to take things in one set of relations, for other purposes in

another set. In the two cases their contexts are apt to be different. In the case of our affectional experiences we have no permanent and steadfast purpose that obliges us to be consistent, so we find it easy to let them float ambiguously, sometimes classing them with our feelings, sometimes with more physical realities, according to caprice or to the convenience of the moment. Thus would these experiences, so far from being an obstacle to the pure-experience philosophy, serve as an excellent corroboration of its truth.

First of all, then, it is a mistake to say, with the objectors whom I began by citing, that anger, love and fear are affections purely of the mind. That, to a great extent at any rate, they are simultaneously affections of the body is proved by the whole literature of the James-Lange theory of emotion. All our pains, moreover, are local, and we are always free to speak of them in objective as well as in subjective terms. We can say that we are aware of a painful place, filling a certain bigness in our organism, or we can say that we are inwardly in a 'state' of pain. All our adjectives of worth are similarly ambiguous—I instanced some of the ambiguities on page 490 of the former article. Is the preciousness of a diamond a quality of the gem? or is it a feeling in our mind? Practically we treat it as both or as either, according to the temporary direction of our thought. 'Beauty,' says Professor Santayana, 'is pleasure objectified'; and in Sections 10 and 11 of his work, 'The Sense of Beauty,' he treats in a masterly way of this equivocal realm. The various pleasures we receive from an object may count as 'feelings' when we take them singly, but when they combine in a total richness, we call the result the 'beauty' of the object, and treat it as an outer attribute which our mind perceives. We discover beauty just as we discover the physical properties of things. Training is needed to make us expert in either line. Single sensations also may be ambiguous. Shall we say an 'agreeable degree of heat,' or an 'agreeable feeling' occasioned by the degree of heat? Either will do; and language would lose most of its esthetic and rhetorical value were we forbidden to project words primarily connoting our affections upon the objects by which the affections are aroused. The man is really hateful; the action really mean; the situation really tragic—all in themselves and quite apart from our opinion. We even go so far as to talk of a weary road, a giddy height, a jocund morning or a sullen sky; and the term 'indefinite' while usually applied only to our apprehensions, functions as a fundamental physical qualification of things in Spencer's 'law of evolution,' and doubtless passes with most readers for all right.

Psychologists, studying our perceptions of movement, have unearthed experiences in which movement is felt in general but not

ascribed correctly to the body that really moves. Thus in optical vertigo, caused by unconscious movements of our eyes, both we and the external universe appear to be in a whirl. When clouds float by the moon, it is as if both clouds and moon and we ourselves shared in the motion. In the extraordinary case of amnesia of the Rev. Mr. Hanna, published by Sidis and Goodhart in their important work on 'Mutiple Personality' (New York: Appleton, 1905) we read that when the patient first recovered consciousness and "noticed an attendant walk across the room, he identified the movement with his own. He did not yet discriminate between his own movements and those outside himself" (p. 102). Such experiences point to a primitive stage of perception in which discriminations afterwards needful have not yet been made. A piece of experience of a determinate sort is there, but there at first as a 'pure' fact. Motion originally simply *is;* only later is it confined to this thing or to that. Something like this is true of every experience, however complex, at the moment of its actual presence. Let the reader arrest himself in the act of reading this article now. *Now* this is a pure experience, a phenomenon, or datum, a mere *that* or content of fact. *'Reading' simply is, is there;* and whether there for some one's consciousness, or there for physical nature, is a question not yet put. At the moment, it is there for neither; later we shall probably judge it to have been there for both.

With the affectional experiences which we are considering, the relatively 'pure' condition lasts. In practical life no urgent need has yet arisen for deciding whether to treat them as rigorously mental or as rigorously physical facts. So they remain equivocal; and, as the world goes, their equivocality is one of their great conveniences.

The shifting place of 'secondary qualities' in the history of philosophy is another excellent proof of the fact that 'inner' and 'outer' are not coefficients with which experiences come to us aboriginally stamped, but are rather results of a later classification performed by us for particular needs. The common-sense stage of thought is a perfectly definite practical halting-place, the place where we ourselves can proceed to act unhesitatingly. On this stage of thought things act on each other as well as on us by means of their secondary qualities. Sound, as such, goes through the air and can be intercepted. The heat of the fire passes over, as such, into the water which it sets a-boiling. It is the very light of the arc-lamp which displaces the darkness of the midnight street, etc. By engendering and translocating just these qualities, actively efficacious as they seem to be, we ourselves succeed in altering nature so as to suit us; and until more purely intellectual, as distinguished from practical,

needs had arisen, no one ever thought of calling these qualities subjective. When, however, Galileo, Descartes, and others found it best for philosophic purposes to class sound, heat and light along with pain and pleasure as purely mental phenomena, they could do so with impunity.

Even the primary qualities are undergoing the same fate. Hardness and softness are effects on us of atomic interactions, and the atoms themselves are neither hard nor soft, nor solid nor liquid. Size and shape are deemed subjective by Kantians; time itself is subjective according to many philosophers; and even the activity and causal efficacy which lingered in physics long after secondary qualities were banished are now treated as illusory projections outwards of phenomena of our own consciousness. There are no activities or effects in nature, for the most intellectual contemporary school of physical speculation. Nature exhibits only *changes,* which habitually coincide with one another so that their habits are describable in simple 'laws.'

There is no original spirituality or materiality of being, intuitively discerned, then; but only a translocation of experiences from one world to another; a grouping of them with one set or another of associates for definitely practical or intellectual ends.

I will say nothing here of the persistent ambiguity of *relations.* They are undeniable parts of pure experience; yet, while common sense and what I call radical empiricism stand for their being objective, both rationalism and the usual empiricism claim that they are exclusively the 'work of the mind'—the finite mind or the absolute mind, as the case may be.

Turn now to those affective phenomena which more directly concern us.

We soon learn to separate the ways in which things appeal to our interests and emotions from the ways in which they act upon one another. It does not *work* to assume that physical objects are going to act outwardly by their sympathetic or antipathetic qualities. The beauty of a thing or its value is no force that can be plotted in a polygon of compositions, nor does its 'use' or 'significance' affect in the minutest degree its vicissitudes or destiny at the hands of physical nature. Chemical 'affinities' are a purely verbal metaphor; and, as I just said, even such things as forces, tensions and activities can at a pinch be regarded as anthropomorphic projections. So far, then, as the physical world means the collection of contents that determine in each other certain regular changes, the whole collection of our appreciative attributes has to be treated as falling outside of it. If we mean by physical nature whatever lies beyond the surface

of our bodies, these attributes are inert throughout the whole extent of physical nature.

Why then do men leave them as ambiguous as they do, and not class them decisively as purely spiritual?

The reason would seem to be that, although they are inert as regards the rest of physical nature, they are not inert as regards that part of physical nature which our own skin covers. It is those very appreciative attributes of things, their dangerousness, beauty, rarity, utility, etc., that primarily appeal to our attention. In our commerce with nature these attributes are what give *emphasis* to objects; and for an object to be emphatic, whatever spiritual fact it may mean, means also that it produces immediate bodily effects upon us, alterations of tone and tension, of heart-beat and breathing, of vascular and visceral action. The 'interesting' aspects of things are thus not wholly inert physically, though they be active only in these small corners of physical nature which our bodies occupy. That, however, is enough to save them from being classed as absolutely non-objective.

The attempt, if any one should make it, to sort experiences into two absolutely discrete groups, with nothing but inertness in one of them and nothing but activities in the other, would thus receive one check. It would receive another as soon as we examined the more distinctively mental group; for though in that group it be true that things do not act on one another by their physical properties, do not dent each other or set fire to each other, they yet act on each other in the most energetic way by those very characters which are so inert extracorporeally. It is by the interest and importance that experiences have for us, by the emotions they excite, and the purposes they subserve, by their affective values, in short, that their consecution in our several conscious streams, as 'thoughts' of ours, is mainly ruled. Desire introduces them; interest holds them; fitness fixes their order and connection. I need only refer for this aspect of our mental life, to Wundt's article 'Ueber psychische Causalität,' which begins Volume X. of his *Philosophische Studien*.[3]

It thus appears that the ambiguous or amphibious *status* which we find our epithets of value occupying is the most natural thing in the world. It would, however, be an unnatural status if the popular opinion which I cited at the outset were correct. If 'physical' and 'mental' meant two different kinds of intrinsic nature, immediately, intuitively, and infallibly discernible, and each fixed forever in

[3] It is enough for my present purpose if the appreciative characters but *seem* to act thus. Believers in an activity *an sich*, other than our mental experiences of activity, will find some farther reflections on the subject in my address on 'The Experience of Activity' in the *Psychological Review* for January, 1905.

whatever bit of experience it qualified, one does not see how there could ever have arisen any room for doubt or ambiguity. But if, on the contrary, these words are words of sorting, ambiguity is natural. For then, as soon as the relations of a thing are sufficiently various it can be sorted variously. Take a mass of carrion, for example, and the 'disgustingness' which for us is part of the experience. The sun caresses it, and the zephyr wooes it as if it were a bed of roses. So the disgustingness fails to *operate* within the realm of suns and breezes,—it does not function as a physical quality. But the carrion 'turns our stomach' by what seems a direct operation —it *does* function physically, therefore, in that limited part of physics. We can treat it as physical or as non-physical according as we take it in the narrower or in the wider context, and conversely, of course, we must treat it as non-mental or as mental.

Our body itself is the palmary instance of the ambiguous. Sometimes I treat my body purely as a part of outer nature. Sometimes, again, I think of it as 'mine,' I sort it with the 'me,' and then certain local changes and determinations in it pass for spiritual happenings. Its breathing is my 'thinking,' its sensorial adjustments are my 'attention,' its kinesthetic alterations are my 'efforts,' its visceral perturbations are my 'emotions.' The obstinate controversies that have arisen over such statements as these (which sound so paradoxical, and which can yet be made so seriously) prove how hard it is to decide by bare introspection what it is in experiences that shall make them either spiritual or material. It surely can be nothing intrinsic in the individual experience. It is their way of behaving towards each other, their system of relations, their function; and all these things vary with the context in which we find it opportune to consider them.

I think I may conclude, then (and I hope that my readers are now ready to conclude with me), that the pretended spirituality of our emotions and of our attributes of value, so far from proving an objection to the philosophy of pure experience, does, when rightly discussed and accounted for, serve as one of its best corroborations.

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ON THE DISCRIMINATION OF CRITICAL AND CREATIVE ATTITUDES

THE activities of the artist and of the scientist are many-sided and their relations so complex that a multitude of contrasts may readily be acknowledged to exist between them. Were these differences unrelated, an adequate discrimination of their provinces would be possible only through an exhaustive enumeration of their

points of divergence. If, on the other hand, the various manifestations of each attitude are systematically connected, it should be possible to point to some broad and simple distinction in method or point of view upon which this profusion of contrasted characters depends, and by which the affiliations of any particular bit of experience may be determined.

If among the manifold attitudes of the human will a fundamental principle of differentiation be sought, we shall find ourselves habitually making a twofold division of the forms of subjective experience. It is hard to give a name to these discriminated types; no term is adequate and exclusive. The one is what the subject is conscious of; the other, what he is concerned with. These terms represent different aspects of experience, not events distinct in time; for the two are inseparable moments of every content of experience.

Out of this discrimination of attitudes arises a derivative distinction between aspects of the content of consciousness which we call *existence* (what one is conscious of) and *worth* (what one is concerned with). With existence the perceptive subject is engaged. Here one strips oneself as far as possible of all personal attitude toward the experience. The event is viewed as purely objective, alike for a multitude of observers; and in the ideal process is sought the most adequate representation of these universally valid relations. Worth concerns the active subject. From this point of view the experience is treated solely as an object of will, a motive. Its significance lies in the direction and amount of its force as an impulse to activity. It is a moment in a constructive life.

In dependence upon the discrimination of these aspects of experience arise two different modes of regarding any object or process of the world. From the first point of view it is looked upon as a totality having purpose and significance, all parts being organic to one end. The reality of the thing under this conception lies in its unity. The constituent elements by themselves are meaningless. They exist only as parts which receive significance through the whole. From the second point of view the object or event is regarded as potentially a group of elements, not as a significant unity. Its standpoint is atomistic. The totality exists only to be analyzed, to be reduced to its constituents, whether material or causal. It is of the latter that permanent existence is strictly to be predicated, and this in proportion to their simplicity and universality. The form of their combination is a teleological unity depending for its appearance upon the selective point of view of the human will and suffering transformation from moment to moment as the purpose of that will fluctuates.

Every activity which embodies the former point of view deals

with phenomena in a creative way; every application of the latter concept is a treatment of experience from the critical point of view. By the creative attitude, then, is meant all activity which seeks to convey the unitary significance of the thing or event. Its aim is to set the object or process forth in such a manner that the effect which it produced upon the constructively apperceptive subject shall be passed over to the observer. The critical activity, on the contrary, is concerned wholly with the analysis of experience into its phenomenal elements. With its significance, that is to say, its value as dependent upon any such selective point of view, criticism has as little to do as possible. Its single function is the determination of uniformities of connection between phenomena through processes of analysis. It seeks always to dissolve the structure of experience and to exhibit its irreducible elements in their relation to one another. The unanalyzed object may be a thing of interest, of beauty or of worth; it can not be the subject of any form of descriptive or critical activity.

Both the description of experience and its interpretation are forms of reorganization by the purposeful human will. Creative and critical activity alike dissolve the continuity of actual experience for the purpose of rearranging its elements in an ideal order. The attitudes of artist and scientist, which share in this common attribute of ideal reorganization, are to be discriminated by the motives which underlie their special forms of synthesis, and by the criteria which determine the order in which their materials are arranged. The critical activity seeks a logical reconstruction of experience for the purpose of description, and in response to the demand of the human spirit to understand its world. The creative activity undertakes a sentimental reconstruction of experience for the purpose of producing a mood and in response to the demand of the human spirit to enjoy its world. By the term artist is here meant all who thus deal with experience in a creative way; by scientist, all who deal with it in a critical way. The terms apply also, of course, to all moods and successive moments of the individual life in which, as may alternately occur, the treatment of experience is now logical and then sentimental.

Scientific work is a function of the subject as perceptive, and has to do with the existence of phenomena. The direction of activity is toward understanding, the objective expression of which is knowledge. One's aim is to describe through generalizations or laws. The object of a description is fact. Its criteria are exactitude and completeness. Accomplishment is truth; failure is error. Artistic work is a function of the subject as active and is always an expression in some form of the worth of experience. The will is directed

toward use and enjoyment through the products of the creative activity. One's intention in relation to such a product is solely to estimate on the basis of ideals. The result of an estimation is value. Its criteria are sincerity and power. Accomplishment is holiness (wholeness); failure is sin. We have here two sets of terms corresponding to each other, which may be set in opposite columns as indicative of the two contrasted forms of activity, and as determining the terminology of the two great classes of writing which DeQuincy has called, respectively, the literature of knowledge and the literature of power.

The nature of critical activity will perhaps not be in doubt, but the limits of creative expression and the implications of its attitude are less evident. The artist's aim, whether in his esthetic appeal to the apperceptive personality or in his ethical appeal to the constructive personality, is to affect, to impress, to move. The selection of his material and the method of his arrangement are both dominated by this one purpose. In the province of esthetic creation it is the aim of the artist so to present the thing or event that the effect produced upon him by the contemplation or experience of it shall be passed over to the beholder. He seeks, in short, to communicate his own mood. In the province of ethical creation, on the other hand, it is the artist's function to communicate his own will. His aim is so to present the thing or event that it shall be effective in transforming the activity of the subject to whom it is addressed. Not truth, but power is at the heart of all artistic activity; not to understand, but to feel and to use, constitute one the recipient of the creative impulse. Truth, indeed, must be there, but it is truth of impression, which is sincerity, not truth of description.

The two moods, critical and creative or appreciative, are indeed mutually incompatible. Experience presents only successive translations from the one point of view to the other, never the combination of the two. The artist as such can not so apprehend the relations of the object of his contemplation as to rationalize his preference. He ceases to be in the attitude of artist the moment he undertakes to analyze the nature and basis of his judgment of worth. He is no longer creator, but critic; for he has ceased to enjoy his experience, and become merely an observer of it. For equally of the scientist must it be said that the contemplation of the relations discovered by his analysis as sources of enjoyment means his instant translation to the artistic point of view. The

> '. . . Lone watcher of the skies
> When a new planet swims into his ken,'

if in the mood which Keats conceives to be his, is simple poet. The descriptive fact lies wholly in abeyance; for him the romance of the

experience and its sublimity are the only realities of the moment. Science can take account of none of these things. For it emotion is a sum of phenomenal elements; the moral will is a complex reaction resolvable into a set of causal connections. Science neither estimates nor determines values; it apprehends neither dignity, nor use, nor goodness, nor beauty in its objects. Its world is there to be weighed and measured, not to be appreciated and enjoyed.

In explaining the useful classification of sciences as descriptive and normative it has sometimes been said that the former, such as astronomy, natural history, philology and psychology, describe facts; while the latter, such as grammar, logic, esthetics and ethics, prescribe values. Grammar, for example, does not inquire how men do, as a matter of fact, use words, or how they have used them in the past; such is the office of philology, a descriptive science. On the contrary, it prescribes how one ought to use his words. Hence the alternative title 'prescriptive' science. In such a classification, the work of the sciences contained in the latter group is confused with those aspects of the undivided human life which it is their function to describe, with the arts of correct speaking, of good taste and of right living. Ethics never seeks to prescribe ideals of human conduct, to determine what shall constitute our notion of good or evil. It aims only to analyze the already existing phenomenon of moral judgment. Esthetics aims only to determine the form of the beautiful object and the nature and basis of its impression as an actual experience which men share in common. There is no science but descriptive science and analysis is its method.

The work of science is the transcription of the objectified world of experience, in terms of its temporal and causal correlations. The work of art is the representation of human emotion or purpose through the symbols of the external world. This peculiar and characteristic difference in the ends toward which their activities are directed is forced upon our notice in every comparison of artistic and scientific work. The aim of the latter is to give a systematically completed description of phenomena. It is not simply those properties of the thing which may work him advantage or injury that the scientist studies, but the whole system of relations in which it stands to other existing things. It can not be said that no difference in rank exists in the scientist's world, that all facts are of equal value to him. Wherever systematization appears there must be subordination of lower to higher. In the end, perhaps, the criterion of worth in the two fields is the same, namely, richness of relationship. For the scientist that is the higher, the more important, which involves the greater range of implications. It is the deeper relation, the wider law; and the goal of his inquiry is the universal law,

the complete expression of the relatedness of the world. His work is not perfected until he has brought every object and event into connection with all other existences. The science to which each individual contributes is a systematic unity. Every property discovered, every relation established, implies all preceding work as its condition, and itself gives further validity and significance to that body of knowledge.

In art no such transcendent unity appears, but, on the contrary, irreconcilable rivalry and exclusiveness. Mood succeeds mood without fusing, the one artistic conception replaces the other instead of combining with it to form a greater whole. The object of esthetic contemplation is such in virtue only of its embodiment of this very ideal of complete self-dependence. The fundamental principle in the composition of a picture, in the construction of a monument, in the writing of a poem, in the formation of character, is the pervasive unity of it, wherein all the functions of its parts are comprehended and fulfilled. The art-product is a closed system in which every impulse finds satisfaction because each thought which penetrates it is reflected backward, and finds its object ultimately within the circle of elements which the work comprises.

No such unity is conceivable in the special sciences. The description of an isolated thing is impossible. It is perceived at once to be a fragment. Its relations must be broken off on every side if it is to be lifted into solitary view. In this lies the fundamental distinction between the critical and creative attitudes. The scientist explains the individual object by integrating it with a wider system; the artist interprets a wider system by representing it in an individual object. Science therefore expresses itself in abstract universals, but art in concrete particulars. Nothing less than the whole will serve science as an ideal; in art a sketch, a microcosm may reveal the type more perfectly than the finished portrait or the macrocosm.

The function of the artist, then, is so to select and represent the single object, the individual experience, that it shall exhibit the universal, and so stimulate the imagination of all who have shared in its experience.

This delight in the single object, its acceptance as representing the universe, is wholly foreign to science. Yet the underlying motive of all description, of all explanation, is the desire for unity, a unity never attained, but foreshadowed and involved in every synthesis, for the attempt at explanation is the expression of a striving to view the world as one rational system. It is, therefore, a unity which becomes more definite as the description of the world grows more comprehensive and adequate. The perfect science is

the complete expression of existence, a knowledge which can be stated only as the apprehension of that existence in the form of an artistic whole; not as the elusive sense which sometimes thrills one with the feeling that the significance of existence lies at the moment within his grasp, a mystic insight which can not be put into intellectual terms; but in that adequate realization of the inconceivably manifold relations of the world which we ascribe to the divine mind. The apprehension of existence as such a unity, a system in which the meaning of every part lies wholly within the system and nothing leads the contemplative mind beyond its bounds, is what I understand by the esthetic attitude; the system which can thus be contemplated is what I understand by the artistic object. In their ultimative motives, therefore, the two forms of activity have a common meeting-place, and the appreciative contemplation of the world of reality becomes the crown and completion of scientific work.

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AN UNUSUAL FEATURE OF THE HYPNAGOGIC STATE

EVER since the time of Maury considerable aid in understanding dream processes has been afforded by the study of the hypnagogic state. Save that the onset of sleep brings with it the distinctive feature of the dream, namely its illusory sense of reality together with all the subsidiary characteristics that this immediately involves,—save in this respect the hypnagogic state offers a rather exact parallel to the dream itself. In both is there the reproduction of the unusually vivid impressions of the day. In both is there the heightened clearness and intensity of the various types of imagery peculiar to the individual. Indeed, this last phenomenon is so marked that, as Myers has pointed out, we first get revelations of our visualizing power by noting the phantasmagoria of the hypnagogic period. In both are there the abrupt transitions, the sudden lapses, the irruptions of the irrelevant and the unfamiliar, the spontaneous coming and going of chaotic and multiform processes that we can neither check nor further. Similarly there are in both states occasional moments when all processes are extraordinarily coherent and rational, moments when vexing difficulties become clarified, when uncertainties are resolved and complexities are simplified. Less frequently we find in both states increased powers of recall, so that the revivals in the hypnagogic stage of dates, addresses or lines of poetry furnish an exact parallel to that well-attested hypermnesic character of certain dreams which often bring to the dreamer practical waking consequences of a highly convenient nature.

All these matters are now commonplaces of dream psychology, to those of us at least who are fortunate enough to have well-defined hypnagogic experiences. One feature of this general concordance of which I have been speaking seems, however, not to have been noted, presumably for the reason that it is of rare occurrence. This is the revival of impressions that, while never consciously received by the individual, have yet come within the range of vision or of hearing. As far as dreams are concerned, Maury reported such cases and investigators since his time have published plenty of confirmatory evidence. Members of the S. P. R. have collected the most striking instances of this sort. But I am not aware that a hypnagogic parallel for these occurrences has as yet been noted. Nevertheless, such a parallel would lie quite within the range of expectations, particularly in view of the fact that crystal vision and shell hearing present precisely analogous phenomena. The case that I append has been given me by a student whose observations and reports are unusually accurate and reliable. Her hypnagogic state is exceptionally prolonged, lasting generally from thirty minutes to an hour. During this time there is a great variety of clear-cut and distinct visual imagery ranging from colored mosaic patterns to pictorial rehearsals of the day's experiences. The particular experience here recounted relates to the revival of impressions that had undoubtedly fallen within the range of possible vision without being consciously attended to. The account is given in the third person.

"A. had been gathering a small orchid, commonly called Pagonia or Lamb's-tongue. Ordinarily it is a beautiful shell-pink and very fragrant. Occasionally it is white, and perhaps in a hundred pink ones a single white one may be found. One day A. looked very carefully for a white one, as she wanted to show it to a friend who was also a nature-lover, but she failed to find one. That night in the hypnagogic state she saw two, very distinctly, near a small clump of alders and low laurel. The setting of marsh, moss and cranberry blossoms was complete. The day following A. went again to the place of the search and found the white pagonias as indicated. She then remembered that the previous day, just as she had reached that part of the marsh, one of her companions punctured her hand on a barbed wire fence and that she had gone to bind it up."

This is only one of a number of entirely similar experiences that A. has had. I have before me a second account describing how the hiding-place of a lost key was revealed in the hypnagogic vision. As simple, after all, as these matters really are, it seems worth while to put them on record, in the hope of eliciting further testimony along the same line.

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REVIEWS AND ABSTRACTS OF LITERATURE

Studies of Feeble-Mindedness.[1]

The study of the mentally defective classes is of interest and importance to both physicians and psychologists. Unfortunately, however, psychologists have concerned themselves almost wholly with the investigation of the mental processes of normal people, and have not considered the subject of abnormal psychology. Physicians, on the other hand, are interested in abnormal psychology, but largely, and almost exclusively, in those mental processes which are of importance for diagnosis, and those

[1] Under this titie there have been included the following articles on idiots, imbeciles, *enfants arriérés, enfants faibles d'esprit,* and on *enfants anormaux* and abnormal children when it was evident that the term 'abnormal' was used synonymously, or nearly so, with 'feeble-minded':

1. 'Les enfants anormaux à Bruxelles.' DEMOOR ET DANIEL. *Année psychologique,* 1900, VII., 296–313.

2. 'Expériences de copie: essai d'application à l'examen des enfants arriérés.' SIMON. *Ibid.,* pp. 490–518.

3. 'L'interprétation des sensations tactiles chez les enfants arriérés.' SIMON. Ibid., pp. 537–558.

4. 'Eine experimentelle Studie über die Association in einem Falle von Idiotie.' A. WRESCHNER. *Allg. Zeitsch. f. Psychiatrie,* 1900, LVII., 241–339. (Complete account of association experiments. Prolix but good in giving material for comparison.)

5. 'Taste and Reaction Time of the Feeble-Minded.' A. R. T. WYLIE. *Journal of Psycho-Asthenics,* 1900, IV., 109–112.

6. 'Study of the Senses of the Feeble-Minded.' A. R. T. WYLIE. *Ibid.,* pp. 137–150.

7. 'Memory of the Feeble-Minded.' A. R. T. WYLIE. *Ibid.,* 1900, V., 16–24.

8. 'Motor Ability and Control of the Feeble-Minded.' A. R. T. WYLIE. *Ibid.,* pp. 52–58.

9. "L'illusion de poids chez les anormaux et le 'Signe de Demoor.'" E. CLAPARÈDE. *Arch. de Psychol.,* 1903, II., 22–32.

10. 'La mesure de l'attention chez les enfants faibles d'esprit (phrenastheniques).' F. CONSONI. *Ibid.,* pp. 209–252. (Good material but not sufficient work on normal children for comparison. Esthesiometric results not checked by other methods.)

11. 'Notes sur la psychologie des enfants arriérés.' T. JONCKHEERE. *Ibid.,* pp. 253–268.

12. 'Psychophysical Tests of Normal and Abnormal Children.' R. L. KELLY. *Psychol. Review,* 1903, X., 345–372. (Incomplete and evidently hasty work. Not sufficient account of methods for purposes of confirmation. Subjects not described.)

13. 'Experimental Studies in Mental Deficiency: Three cases of Imbecility (Mongolian) and six cases of Feeble-mindedness.' F. KUHLMANN. *Amer. Jour. of Psychol.,* 1904, XV., 391–446. (Excellent article. Material well digested. Good bibliography.)

14, 15. 'Ueber die Assoziationen von Imbezillen und Idioten.' K. WEHRLIN. *Jour. f. Psychol. u. Neurol.,* 1904, IV., 120–123, 129–143. (Confirmation and extension of Wreschner's work. Many cases.)

which help in making prognoses. What information we have, therefore, is meager in amount and, perhaps, as is sometimes said, superficial. Many interesting mental phenomena are noted and explained in an off-hand way, and many have not been noted, because they are thought to be of little diagnostic or prognostic importance. The conditions which have been studied only superficially and those which have not been studied are likely to throw light upon similar but elusive processes in normal people. Much valuable information could be obtained from a study not only of the defects, but also of the exaggerations and the inconsistencies in the insane and feeble-minded.

The possible difficulties of experimentation upon the insane and the mentally deficient may have kept some psychologists from attempting investigations. It may be said, however, that the difficulties have been greatly exaggerated, and such difficulties as there are may be readily surmounted. Opportunity for the careful and systematic study of patients may be obtained readily at many hospitals. Whatever former disinclination to the study of patients by 'outsiders' medical men may have had has given place to a willingness to have careful experiments made to obtain a better knowledge of the psychical conditions in the mentally abnormal. The studies which are reported in this review indicate clearly that it is considered necessary to have general observations, such as are given by Sollier,[2] analyzed, supplemented and verified by a careful study of cases by experimental methods.

The feeble-minded have been classified according to many different criteria—speech, moral and intellectual capacity and dullness, extent of mental faculties and attention—and the names designating the conditions have widely differed. Dagonet makes four classes: (1) Simple-minded, (2) imbecility, (3) idiocy, (4) automatism. Voisin has used the term 'mental debility' in about the same sense as Dagonet's 'simple-minded.' Sollier, who bases his classification upon the process of attention, divides the feeble-minded into three classes only: "(1) Absolute idiocy, a complete absence and impossibility of attention; (2) simple idiocy, a feebleness and difficulty of attention; (3) imbecility, instability of attention."[3] In all classes Sollier says there is not only a diminution in quantity, but also a modification in quality of the mental faculties. Moreover, it may be added, all idiots present cerebral lesions and are thus further differentiated from normal people and imbeciles.

1. *Sensation.*—Several authors have cited the disturbances and aberrations of sensation as the cause of the lack of mental ability in some of the feeble-minded. It is undoubtedly true, as has been pointed out, that the absence or alteration of sense organs prevents the associational processes ordinarily concerned with these spheres, and to that extent there is a defect of the mental life. Blindness or deafness or the lack of other senses, or a combination of two or more defects in one person, does not necessarily produce an incapacity for the associations in other sensory motor paths. Sensory defects may contribute to, but they are probably

[2] 'Psychologie de l'idiot et de l'imbecile,' 2d edit., Paris, 1901.

[3] *Op. cit.*, p. 17.

not the greatest and certainly not the only factors in, the production of mental weakness.

Most idiots, Schleich found, are hypermetropic, while in normal children there is a tendency to myopia. Wylie (6)[4] found in the children examined by him a visual dullness six to eight times the normal, and Kelly (12) in the pupils of the Physiological School (who are not described, but who are probably imbeciles), found poor vision. One half were below the standard of keenness, and there was astigmatism in all but one or two. On the other hand, Sollier makes the general statement that 'in imbeciles hearing as well as sight presents nothing abnormal.' Schleich has defined the abnormality in the feeble-minded, but from the articles by Wylie and by Kelly it is impossible to tell what the differences are.

Owing to the incomplete color vocabulary of many idiots and imbeciles it is difficult to make determinations of the color sense. Jonckheere (11) and Kelly (12) agree that often color vision is defective. Kelly reports six out of twelve children with some kind of color blindness and one with total color blindness. Only two of Kelly's cases had an accurate color vocabulary, and the same deficiency has been noted by Jonckheere. Furthermore, Jonckheere states that in these cases it is very difficult to develop the sense (terminology).

Only two cases in the Physiological School were found to have normal hearing (12), but in other places nothing abnormal has been found (6 and Sollier, see above).

Taste and smell are very often dulled or perverted in the feeble-minded. The general statement is made that simple idiots are voracious and gluttonous, and that imbeciles are nearly all gourmands. Idiots will carry to their mouths anything which comes to hand—just as very many normal children do—but, in addition, some will eat salt as if it were sugar. Stones, earth, sticks, bugs and even excrement are swallowed by those in whom taste is lacking or perverted. Of 66 children examined by solutions of quinine, acid and salt, 23 could not tell any difference, 16 responded to the bitter, 40 to acid and 22 to salt. Twenty of the brightest children averaged for threshold—sugar, 1.3 per cent. solution; salt 0.48 per cent.; acid, 0.41 per cent.; quinine, 0.0177 per cent. (5).

The pain threshold is higher than in normal children (6 and 12), temperature threshold higher (12), touch dulled (6) and the double point threshold of touch increased (3 and 12), while the muscle sense is unusually bad (6 and 11). Wylie (6) found a dullness of the muscle sense varying according to the general mental ability, and because of its importance in the education of the feeble-minded efforts are now being made towards a thorough training in this field.

Demoor (1) has found and Claparède (9) has confirmed a reversal of an ordinary weight illusion in cases of idiotism. When two masses of unequal size, but of equal weights, are lifted, the smaller is judged the heavier. This illusion is found in children from the age of six or seven and is constant throughout life in normal people, but in lower grades of

[4] These numbers refer to the numbers of the articles quoted in note 1.

idiotism a reverse judgment is given constantly in some cases, and in others the illusion is absent. The reverse illusion—called the 'sign of Demoor'—is found in those cases which are incapable of education, and it has been suggested as a means of diagnosis of idiotism in its worst form. Claparède concludes from his study that "the presence of the weight illusion does not mean that the feeble-minded are of a teachable type, but the 'sign of Demoor,' when present, speaks strongly in favor of idiotism."

2. *Motor Ability and Fatigue.*—Motor training is the kind of education to which most of the feeble-minded readily respond, and upon which depends much of their other teaching. If the movements are rapid and accurate and under fair degree of control much may be hoped for in any attempt to improve their condition. Considerable attention has been devoted, therefore, to the study of motor ability, particularly in relation to school work in the hospitals.

Strength and steadiness (8), accuracy and rapidity of movement (12 and 13) are all less than in normal children, and the threshold of movement is larger (12). Experiments similar to those made by Fullerton and Cattell[5] on the accuracy of perception of the extent of movement in 34 children of the Minnesota School showed no appreciable deviation from the normal (although the author concludes that there is an error of 2 to 10 times the normal) (7).[6] All the experimenters found a very

	Wylie	F. and C.
100 mm.	+ 8	+ 11.8
300 mm.	— 1	+ 2.8
500 mm.	— 17	+ 4.3
700 mm.		— 4.8

It must be remembered that W.'s results are obtained from children, and that perhaps the 500 mm. experiments would give effects similar to those found by F. and C. for 700 mm.

slow rate of tapping and arm movement (8, 12 and 13). Kuhlmann (13) obtained results of practice in accuracy,—throwing at a target,—but the curve is not regular, and showed a decrease in ability so that occasionally it dropped to a point below which it had started. This is undoubtedly due, as the author points out, to decreasing interest; but when the interest is again aroused, as was done, the curve rises again.

The experiments on tapping—most rapid and continued movements—were examined for evidence of fatigue. Many of the subjects tapped at a very slow but continued speed throughout the experiments, and it was difficult, sometimes impossible, to make them tap at a faster rate. The average maximum rate is very slightly above the normal rate. Some tapped faster at first and gradually decreased in rapidity, but neither Wylie (7) nor Kuhlmann (13) believes the decrease to be due to fatigue. Kelly attributes the result to a rapid fatigue, but disregards certain results. Of the children examined by him three showed an increase in

[5] 'Perception of Small Differences.'

[6] The errors from Wylie's series and those obtained by Fullerton and Cattell (p. 48) are as follows.

tapping with the finger from the first to the last parts of the experiment, and four showed corresponding increases in rapidity with arm movements (12). The results would not lead one to believe that 'fatigue with backward children, as would be expected from their low vitality, is very rapid and considerable' (Kelly, 12), but rather that 'the lowering of interest and attention does not permit deduction regarding fatigue (Kuhlmann, 13).

3. *Attention.*—Most authorities agree that the lack of attention is the most common defect in the feeble-minded and the greatest hindrance to their education. If the attention can be sufficiently aroused and trained it is probable that other deficiencies will give place to a more normal condition. Since this matter is considered of such importance we should expect much time given it in the experimental determination of the condition in imbeciles and idiots, but, unfortunately, few of the experimental studies consider the subject.

The results of the experiments upon motor ability and fatigue reported above give some indication of the extent of the attention. Kuhlmann (13) compared the maximal and the normal rate of tapping, and found an average increase of only 1½ taps per second when the attention was directed to make movements as rapidly as possible. (One subject showed a decrease in rate, and another gave practically the same results in both sets of experiments.) The maximum rate is much slower than in normal children. When the subjects were told to tap in time with the beat of a metronome, the accuracy was much greater during the first half minute than at any later time. It seems evident, therefore, that the attention was kept up for about 30 seconds. The esthesiometric tests of Consoni (10) show, in a uniformity of the double-point threshold, a considerable degree of attention to stimuli of one kind, but when distracting influences were brought in—lights, counting blows on the other hand, counting the beats of a metronome, odors, tasting solutions, etc.—the threshold was much greater and much more varied than in normal children. The alterations in attention were found more prominent in the phrenasthenics of the most marked type. Consoni appears to agree with Sollier[7] in his conclusion: the degree of general capacity of attention is in direct relation to the power of inhibition, and the examination of the attention furnishes a precise means for the estimation of the degree of mental weakness.

4. *Reaction Times.*—Twenty-two children gave an average of .388 sec. (M. V., .08) for touch reaction, 21 experiments each; and sixteen children, for sound, averaged .293 sec. (M. V., .085), 24 experiments each. Eight Mongolian type averaged .396 sec. for touch (M. V., .095), and .360 sec. for sound (M. V., .113) (5). The individual averages and variations are not recorded, and it is impossible to tell how much variation there is in the group, and how large the individual variation is. Wylie concludes, however, from the experiments that 'long reaction times and high mean variations seem to be characteristic' of the feeble-minded.

In his experiments on association Wehrlin noted the time for giving the

[7] *Op. cit.*

associations in one high-grade idiot and four imbeciles. One subject was found to give reactions as rapidly as normal people, but the other four were very slow. The average time in seconds for the associations to concrete words was found to be 3.4 sec., normal subjects 1.8 sec.; to abstract words, 3.7 and 1.9 sec., respectively; to adjectives, 3.5 sec. and 1.9 sec.; and to verbs, 3.3 sec. and 2.2 sec. (14 and 15). Wreschner has in one subject the times of about 1,000 association reactions, but these have not been calculated in a manner that makes them available (4). The average time in his experiments is about 3 seconds. The naming of ten object pictures, the distributing cards of different kinds, etc., were used to determine the time for discrimination, association and movement in the subjects examined by Kuhlmann (13). For naming a picture and distributing a picture card Kuhlmann found an average time of 1.48 and 1.46 sec., respectively. For distributing colored cards, 1.67 sec., and for form cards 1.93 sec. The general average for the discrimination, association and movement for one card is 1.64 sec. In addition, the author made separate tests of discrimination time with dominoes, in which experiments the time was very long. No direct comparison is given for normal children.

5. *Association and Memory.*—As was to be expected, the associations of idiots and imbeciles are simple and not very varied. Wreschner (4) used as stimulus words, (*a*) adjectives descriptive of light and color, form and direction, movement, touch, temperature, hearing, smell, taste, pain and general sensations, and esthetic feelings; (*b*) nouns—parts of the body, objects in a room, in a house, in a city, in the earth, botanical words, names of animals, members of a family, and occupations; (*c*) abstract words—with cheerful and sorrowful idea content, descriptions of feelings, will, understanding and consciousness, legal conditions and interjections. These words were used as stimuli ten times each. The associated words which were given are noted in detail and the time in seconds for each association. These are grouped, classified and analyzed in detail. One is struck with the persistence of certain associations throughout the series of ten, and with the fact that there are so many purely sound associations. He finds that the relative number of sound associations for adjectives is 1:3.8; for concrete words, 1:0.7, and for abstract words, 1:0.4. The content associations take a longer time than the sound association, and this is particularly noticeable if the sound and content associations for the same stimulus words are considered. Only one case was tested by Wreschner, viz., an idiot. Wehrlin experimented on 13 idiots and imbeciles—average age, 40—with 58 to 290 experiments each. The simple character of the 'associations' is evidenced by the following list of kinds of associations which were given (14 and 15).

1. Tendency to definition: *e. g.*, 'year'—'12 months.'
2. Tautology: *e. g.*, 'run'—'a man runs'; 'hair'—'beautiful hair.'
3. Generalization: *e. g.*, 'bread'—'eatable.'
4. Time, origin, use, etc., characterization: *e. g.*, 'book'—'for reading.'
5. General functions: *e. g.*, 'wood'—'it burns'; 'bird'—'it flies.'
6. Examples and reminiscences: *e. g.*, 'sick'—'I was sick'; 'father'—'he threw me down stairs once.'

Probably in no other single aspect of mental activity of the feeble-minded are there so varied differences as in memory. Many are unable to remember the simplest words, while others have remarkable memories for special things, *e. g.,* calculation, playing musical instruments, etc. Jonckheere (11) reports two cases of remarkable memory. An imbecile boy examined by him could recognize and name in French or German the disks for a music box with which he played, although he could not read. In this case there was a memory of the arrangement of holes in the disk, or probably of the design of the inscription. Another feeble-minded boy, who entered the school at the age of 9½ with only a German vocabulary, learned in 3½ years French and the Flemish patois and can recite in Dutch. Many of the children of the Vaucluse School have been found to compare favorably with normal children in their memory for numbers and words (copying 50 figures and two sentences); but idiots and imbeciles do poorly in all three tests (2).

Four numerals can be immediately repeated by many feeble-minded, and some can give five or six (12). Wylie tested the visual memory by having children pick out 5 cards (containing colors, letters or forms) previously shown to them, from a number, with the following average results: form, 2.4 cards recognized; color, 2.4; letters, 2.6 (7). Similar results were obtained by Kuhlmann (13). The auditory memory was tested by repetition of six associated words, repetition of groups of sentences, and selection of five nonsense syllables, with the following results: average number of words given correctly, 3.8; words in sentences, 11; nonsense syllables, 2.1.

6. *Miscellaneous Observations.*—All authors agree that the notions of time and space are very difficult to teach the feeble-minded (Sollier, Demoor and Daniel, and Jonckheere). Time is much more difficult than space, and past time much harder than future (11).

Like other mentally underdeveloped people, bright colors are most often preferred. Music with its rhythm has a wonderfully dynamogenic effect, and in some schools it is being used, with excellent results, in classes for gymnastics and motor training.

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Psychical Selection. (*Empiriomonism in the Study of Psychics.*) A. BOGDANOFF. *Questions of Philosophy and Psychology* (Russian Voprossy Phil. y Psychol.), May–June and September–October, 1904, pp. 335–379 and 485–519.

The author seeks to ascertain 'the direction of psychology, if *unity of experience* were *in principle* made its underlying basis.' His conception of empiriomonism he sums up in the following theses:

1. Dualism of experience is inadmissible as a principle. Despite their diversity, the elements of experience are in both spheres, the 'physical' and the 'psychical,' *the same—in themselves neither physical nor psychical; i. e.,* they are outside the pale of these determinations (the thesis of empiriocriticism).

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2. The 'physical' and the 'psychical' represent two ways of grouping the elements of experience: the psychical being experience organized *individually;* the physical, experience organized *socially* (the first thesis of empiriomonism).

3. Every *objective* (physiological) vital process has a parallel *subjective* one. This parallelism must be interpreted in the sense that the physiological life-process is the reflection of the subjective complex in the socially organized experience of living beings (second thesis of empiriomonism).

4. The progressive development of cognition leads to a harmoniously integrated, monistic organization of experience, whose immediate expression is *the organic unity of epistemological methods.* This unity we attain by subordinating the 'subjective' in experience to the 'objective,' by applying to the individually organized experience means elaborated in the sphere of the socially organized experience. In our time this tendency is manifested in the *idea of universality* attributed to the law of the conservation of energy (the thesis of energies).

Thus the author's problem is one of method, viz., the application of *psycho-energics* in psychology. Now, the concept energy implies *commensurability* and universal *equivalence* of phenomena. As to the former, psychical phenomena *are magnitudes*—'intensive,' inasmuch as they exhibit more or less 'force'; 'extensive,' inasmuch as they are capable of associating with one another, thus making up the greater or smaller fullness of conscious life. Of course, they are not *exact* quantities of energy; but is not 'exactness' a relative term also in the other natural sciences? As to the requisite of equivalence, empiriomonism, by its second thesis, rises above it. Indeed, the psychical phenomenon and its concomitant physiological process can no more be regarded as two than the body, visually perceived, can be segregated from the same body, tactually perceived.

THE SCHEMA OF PSYCHICAL SELECTION.—From this view-point the individual experiences (*Erlebnisse*) are, with reference to the psychical system as a whole, either positive or negative; *i. e.,* they either increase or decrease the sum total of its energy. This formula embraces alike the data of biomechanics and of psychology. Psychically, the fluctuations of vitality are expressed in pleasure and pain, *i. e.,* in the so-called positive or negative 'affectional.' Indeed, all psychical life moves between these two poles of the affectional; and the almost tautological statement that 'pleasurable is whatever is sought after and painful whatever is avoided' may be said not only to underlie all applied psychology, but to express the whole process of 'psychical selection.'

The relation of this process to consciousness appears from defining the latter as 'the *province of coordinated psychic variations,*' for, the nature of psychic variations being determined by the sign of the affectional, it follows that the *whole field of consciousness is at once the field of psychical selection.* Thus, the process of psychical selection naturally rises to the rank of a *universal principle* in the investigation of life as the stream of inner *Erlebnisse.*

THE SCHEMA OF ASSOCIATION.—The elements of psychical experience

are connected by association, those of the physical world by the higher type of objective uniformity. The principle of psychical selection is now called upon to 'explain' this psychical connection as follows:

1. Association by contiguity takes place when A and B together occur in consciousness. But then they both are controlled by psychical selection, and form, therefore, *one system of energic equilibrium,* whose relative fixity is determined by the *intensity of the affectional* (a fact underlying pedagogical methods).

2. The higher type of association, that by similarity, is grounded in mental *habituation;* the latter, again, is governed by psychical selection, thus: (*a*) the habitual complex recurs more easily; (*b*) its fixity is ever increasing. For, like the energic process, psychical selection tends toward stable equilibrium, at the same time forming more extensive systems, with a resultant *average* affectional naturally small, but positive; and this accounts for the fact that (*c*) the affectional of the habitual complex inclines toward indifference, excepting cases with a negative affectional, where it passes into a positive one; for, in the sum total, psychical selection is positive. Instance the student of chemistry getting habituated to the smell of H_2S so as to find it in the end even agreeable.

From the foregoing the author infers *en passant* that the principle of psychical selection is broader than what he would call 'psychological Lamarckism,' *i. e.,* 'habituation' and 'exercise' (which play so important a part for Avenarius).

Now, the process of 'generalization' and 'discrimination,' this basis of knowledge, is possible only because the complex A occurs contiguously in more than one connection. In this repeated occurrence, whatever is common to the complexes is more acted upon by psychical selection than the 'individual' traits; the common becomes more conservative and its affectional more reduced, *i. e.,* a 'generalization' is realized. This process of generalization is at the same time an *association by similarity.* If A as the most-repeated combination has been abstracted from the less repeated B, C, etc., A is none the less associated with each one of them, and occurring, say, in A and B, 'tends' to call forth also its other combinations; one bird 'reminds' one of another bird.

The 'coldness' of knowledge, the relative indifference of the affectional in 'generalizations' and 'concepts,' is at once explained. Moreover, this 'coldness' underlies the logical 'law of identity': a high affectional indicates intense psychical selection, setting mental complexes in commotion, *i. e.,* changing their 'identity.'

3. Finally, the highest type of association, that by contrast or dissimilarity (or discrimination), is grounded in the 'rivalry' of mental complexes.

Psychical life exhibits two inseparably connected types: the image-complex (passive) and the will-complex (active attitude). The latter, as such, is *energically negative* (= loss of energy[1]); hence, whenever it dominates the direction of psychical selection is negative, and persists until harmony between the two complexes is established.

[1] This justifies the identification by some philosophers of impulse, will with sufferance.

And now the association in question. The sight of a black man provokes the image of a white man, but not of white paper; obviously, dissimilarity presupposes similarity. Let us then pursue a concrete illustration. The white are at war with the black. A white soldier, strayed off, seeks his way to safety; at a distance he perceives a silhouette; but is it of a white or a black man? Here ensues a rivalry of two images associated with opposite *impulses* (will-complexes), a 'wavering' attended with a negative affectional, a 'disagreeable' situation.

Upon analyzing the two images you find that they, having in common A (= human features), are already associated by similarity. But the one has yet the element B (white) and the other, C (black), and A and B has a will-complex different from that of A and C. Furthermore, in the course of the rivalry each will-complex accentuates the dissimilar elements to the neglect of A; and this is the fundamental trait of 'association by dissimilarity,' or of the 'form of discrimination.' It takes place when the images associated by similarity are at rivalry owing to the dissimilarity of their respective will-complexes. Indeed the image is always connected with some *will*-complex, 'scholastic amusement in hair-splitting' not excepted, for the 'word' is predominantly a *will-reaction,* so that, inasmuch as similar images are signified by dissimilar words, they are *eo ipso* associated with different will-acts.

All these considerations lead the author to regard 'psychology as the science of psychical (or associative) forms of experience that are *determined* by its variable contents.'

In his second article the author proceeds to show the practical applications of the principle of psychical selection.

The components of a psychical system are: (1) the *Erlebnisse* forming the raw material, distinguished as to quantity, quality (heterogeneous or homogeneous), or intensity; (2) the direction of psychical selection, positive or negative; and (3) the intensity of the affectional. An abundant material, heterogeneous and intense, with a perfectly balanced affectional is the ideal norm, the limiting abstraction toward which psychical development is progressing; while the variation of these moments, severally or jointly, determines psychic types.

The work of selection is only positive, for even negative selection, like the hammer that destroys only the unstable and frail, tends to remove whatever is vitally unimportant or detrimental to the system (*i. e.,* the negative while removing a negative becomes positive). In this crucible the psychical development receives its twofold coloring: it is 'realistic' (corresponding to the environmental combinations most repeatedly posited) and 'monistic' (predominance of harmoniously unified complexes). Furthermore, the positive selection proper, keeping consciousness wide awake, feeds the *creative activity of imagination,* and develops the will-power hardened by the negative process. Socially regarded, the ideal type would tend to reconcile, to harmonize, all the contradictions of his epoch, would be the *encyclopedic genius of his time* (a Faust).

Now vary the components. (*a*) Let the negative selection, *ceteris paribus,* be much below the positive; the result is a variety characterized

by the predominance of 'fancy' over realism, of eclecticism over monism, and by unstable will-power. Heine (himself typifying this variety) styles it the Hellenic type. This 'Hellenism' is in our time represented mostly by the 'artistic nature.'

(*b*) The negative selection is much above the positive. Here 'reality' (repeatedly posited environment) is colored intensely gloomy; the negative process, not powerful enough to eliminate it, derives with the help of the positive selection combinations from this reality which are themselves not real (such as ideal images of happiness). The resultant variety is characterized by 'utopism' instead of realism, but with a pronounced monistic tendency manifested in consistency between thinking and acting, and by an invincible will-power in the struggle for existence. This is the 'Hebrew' type portrayed by Heine. These two types are only distinguishable historically.

(*c*) A quantity of psychic material much below the maximum distinguishes the characters of every-day life, who, though analogous to the former, occupy a lower plane. If favored by circumstances they may become the 'heroes' of the 'crowd.' A Washington, also a Gladstone or a Lincoln, belong to this type.

Ordinarily, Heine's Hellenic and Hebrew types lose respectively in beauty and earnestness in proportion as the quantity of psychical material falls below the maximum. Instance the degenerate parasitic classes of a community, on the one hand, and the type produced by the Catholic convent, on the other.

Again, according as the positive or negative selection prevails there obtain Heine's *Philister;* in the one case caricaturing the Hellen, in the other the Hebrew.

Finally, on this narrow basis of scant psychical material there grows up the type of the 'specialist.' From the ordinary Philistine he differs only in part, notably as far as his specialty goes; beyond this there reigns a miserable incoherence and flat eclecticism of psychical masses. However, a highly intensified selection renders the development of this type monistic, though in a peculiar manner, viz., the specialist (of this higher type) views everything through the medium of his specialty. The merchant regards all human life from the view-point of exchange. J. Bentham, that child of the newly-born English capitalism, has based his whole philosophy upon the special ideal of the most profitable bargain with reality.

In conclusion the author illustrates the foregoing by analyzing a concrete case, Shakspear's Hamlet.

Hamlet belongs to the Hellenic type. His psychic system represents a dual organization: Hamlet the warrior by descent (instance his dexterity in fencing), and Hamlet the artist. Theoretically these two personalities coexisted; but when Hamlet is called upon to act we find him wavering, irresolute; the Hellenic lack of integrity, for which the predominance of positive selection (happiness) is responsible, comes to light. But then the work of negative selection, the harmonizing force of sufferance, sets in, pushing Hamlet toward the 'ideal' type. He becomes an-

other man; his thirst for harmony passes into an active *will to create* harmony by punishing crime and restoring righteousness. Hamlet succombs, but as conqueror: he leaves his place to Fortinbras, a man of known integrity. Thus, the essence of the tragedy is: the Hellenic soul through painful struggle and profound suffering (*i. e.*, through negative selection) attains to a higher form of integrity and perfection.

C. KUNTZ.

ISELIN, N. J.

The Limits of Genetic and of Comparative Psychology. MARY WHITON CALKINS. *British Journal of Psychology,* January, 1905. Pp. 261–285.

This paper begins by distinguishing genetic from comparative psychology. Genetic psychology may or may not use the comparative method. Its distinctive feature is not its method, but that it treats its object as developing. This object is the conscious self. And development, as used here, is defined as 'the succession of more complex upon simpler states, or, conversely, of simpler upon more complex states of a unitary being.' 'Development, in the technical sense of evolutionary biology, can not possibly be predicated of conscious selves,' and heredity and natural selection have no possible application in such psychical development.

Turning to comparative psychology, the author discusses the 'continuity theory,' which holds consciousness to be a property of life, and the 'mechanistic theory,' which denies that organisms whose actions are unvaried reflexes are conscious. It is shown that neither has proved more than a possibility. 'Both agree in recognizing consciousness where there are adapted reactions.' Using this criterion, it will perhaps be found that all forms are conscious, and the field of comparative psychology 'is, after all, as wide as animal life.'

If we consider the nature of the consciousness of the different forms, the problem becomes more limited. "The minimal consciousness which an animal can be proved to have is the consciousness which accompanies the trial and error type of learning. . . . As parallel of the preliminary, random performances, there is no need to assume any save a sensational (and primitively affective) consciousness of the animal's environment and its own movements." The acquired reactions imply imagination, the animal reacts with purpose. Further, animals react only to concrete situations without analyzing them, they lack relational consciousness. And lastly, an animal, to be conscious at all, must be conscious of itself. But this does not mean that animals have attained such self-consciousness as reflective imitation involves.

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JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. March, 1905. *La regularité universelle du devenir et les lois de la nature* (pp. 225–251): W. M. KOZLOWSKI.—Uniformity of nature underlies induction. Regularity is a projection of

our thought. Experience accords with laws because we explain exceptions by new laws. Scientific laws are hypothetical judgments. *La Paix et la Guerre* (pp. 252–270): CH. RICHET. Humanity has progressed not by war but by peace. War may be natural, but society is meant to overcome natural evils. Arbitration will soon become universal. Pacific education is the only method. *Amitié et Socialité* (pp. 271–282): G. PALANTE. Friendship is in sharp contrast with sociality or altruism. The latter is based on convention, frowns on spontaneity, fears isolation, disapproval of the crowd. The former is exclusive, aristocratic, egoistic, encourages freedom and progress. Revue Critique: *La Beauté rationnelle* (pp. 283–294): FR. PAULHAN. Review and criticism of P. Souriau, *La Beauté rationnelle.* Analyses et Comptes Rendus: P. Martinetti, *Introduzione alla Metafisica:* J. SEGOND. *L'Année psychologique:* B. BOURDON. R. S. Woodworth, *Le Mouvement:* J. PHILIPPE. H. Thompson, *Psychological Norms in Men and Women.* J. Whatson, *Animal Education.* J. F. Messenger, *The Perception of Number.* J. W. Jones, *Sociality and Sympathy. Études sur la philosophie morale au XIX^e siècle:* J. DELVAILLE. W. H. Johnson, *The Free-will Problem in Modern Thought:* J. SEGOND. R. Richter, *Der Skepticismus in der Philosophie:* C. Bos. C. de Vaux, *Avicenne:* F. PICAVET. R. Richter, *Friedrich Nietzsche:* G. PALANTE. J. K. Hollitscher, *Friedrich Nietzsche:* G. PALANTE. F. Rittelmeyer, *F. Nietzsche und das Erkenntnisproblem:* G. PALANTE. A. Drews, *Nietzsches Philosophie:* G. PALANTE. O. Ewald, *Nietzsches Lehre in ihren Grundbegriffen:* G. PALANTE. R. Oehler, *F. Nietzsche und die Vorsokratiker:* G. PALANTE. Revue des Périodiques Etrangers. Livres déposés.

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NOTES AND NEWS

THE Arnold Gerstenberg studentship at the University of Cambridge, of the annual value of nearly £90, tenable for two years, open to men and women who have obtained honors in Part I. or Part II. of the Natural Sciences Tripos and whose first term of residence was not earlier than the Michaelmas term of 1900, will be offered for competition in the Michaelmas term, 1906. It will be awarded by means of essays. The subjects for essays are: (1) a philosophical discussion of the doctrine of energy and particularly of the new theory of energetics; (2) a critical examination of Descartes's philosophy of nature; (3) the relation of mathematics and the theory of probability to physics; (4) the theory of psychophysical parallelism; (5) the scope and methods of comparative psychology; (6) the philosophical import of post-Darwinian theories of natural selection. Candidates must send on or before October 1, 1906, an essay on one of the above subjects to Dr. James Ward, Trinity College, and declare their intention, if successful, of pursuing a course of philosophical study.

AT the meeting of the Western Philosophical Association, held in Lincoln, Neb., on April 21 and 22, the following officers were elected for the ensuing year: President, Professor James H. Tufts; Vice-President, Professor F. C. French; Secretary and Treasurer, Profesor A. O. Lovejoy; members of the Executive Committee, Professors W. B. Pillsbury and A. Ross Hill. The following were elected to membership: Professor Charles W. Fordyce, Dr. L. C. Monin, Professor J. B. Stoops, Dr. Frank P. Graves, Mr. H. C. Campbell and Dr. J. C. Merriam. A report of the meeting, with abstracts of the papers and discussions, will appear in an early issue of the JOURNAL.

PROFESSOR JAMES R. ANGELL'S 'Psychology,' published in this country by Henry Holt and Company, has been republished in England by Constable and Company. A second edition of the work, in which a number of revisions have been made, has been issued.

DR. R. B. PERRY has been advanced to an assistant professorship of philosophy at Harvard University.